THE WESTERN FARMER,

DEVOTED TO AGRICULTURE, HORTICULTURE, AND RURAL ECONOMY.

Vol. I.] Cincinnati, July, 1840. [No. XI.

The disposition to fatten of different Breeds of Hogs.

To be able to decide, as nearly as possible, what particular kind of hog, of all those imported into this country from other countries, as well as the productions of these by crossing them with one another, has the readiest disposition to fatten, is a point of very great importance and interest. Although we have not, at present, any statements from agriculturists and stock raisers in the western country upon this particular point in hogs, yet we have, from foreign sources, and from other parts of the country, some data upon which to found a few pretty certain conclusions on this subject: and until we have further information in this matter, from those farmers who may be curious and patriotic enough to make the necessary experiments, we will content ourselves in laying before our readers all our knowledge derived from foreign trials of this kind, and from some acquaintance we have had with swine in England. In the first place, it is hardly necessary to mention, that the *Chinese* hog has been always *distinguished above all the other breeds by its peculiar aptitude to lay on fat;* but owing to its being but a poor breeder, the pure breed is but little cultivated. Of this breed there are two nearly distinct kinds, the *white* and the *black*. There is also a *mixed breed* of this kind, being spotted and mixed black and white; some of them have prick ears, like the true breed, and others have ears round at the ends, and hanging downwards. These are coarser than the former, but they, unlike them, are remarkably prolific, are good nurses, and will, with proper care, bring up two litters within the year. They are, however, not good store pigs, rarely attaining any great weight, and *much more difficult to fatten* than the original stock of the Chinese breed.

The next in order of fattening propensities, after the true China breed, either black or white, seems to be the *Woburn* or *Bedford breed*, a new variety introduced by the Duke of Bedford. They are of various colors, well formed, hardy, very prolific, and have attained to nearly twice the weight of all other hogs, except the Chinese and Berkshire, within the same given period of time—and even the Berkshire they have surpassed to some not inconsiderable amount. Then, as almost universally admitted, follow the *Berkshire*, too well known to require description. These crossed with the Chinese have produced a race possessing some excellent fattening and other good qualities, and are known in England as the *Tonkay breed*. The Berkshires are dispersed over the whole of England, and therefore have varied both in form and color; but the best are in the neighborhood of Tamworth, in Staffordshire, from the famous *Tamworth boar*. The crosses, also, from this breed are very numerous in England,

and are highly rated in their different districts. After the Berkshire, in kindliness of fattening, must be rated the *Essex half black pigs*, raised by Mr. Western, of Felix Hall. They are short haired, fine skinned, smaller head and ears than the Berkshires; short snubby noses, very fine bone, broad and deep in the belly, and full in the hind quarters; the sows are good breeders, but they are not near such good nurses as the Berkshires. The *Lincolnshire* rank next, and in point of profit are hardly less than the Essex. They are white, and rather tender. This breed is much the same as the *Norfolk* and *Suffolk*. The *Sussex* breed is smaller than the Berkshire. It is a variety of the Essex, and is a very valuable kind of hog. It may be classed next in order for fattening properties, and what is deserving of notice, arrives at maturity sooner than any other kind. The *Hampshire* fatten kindly to a very great size and weight. The *Northampton*, *Shropshire*, and *Yorkshire*, are of large size, but fatten more slowly. The Cheshire are the largest hogs except the Rudgwick, which is the largest in the kingdom of Great Britain. The Essex and Hertford breed, as it is called, has taken premiums from the London and Smithfield cattle club, and is held in high estimation. We then classify the different breed for fattening propensities (until we are further informed by sufficient comparative experiments,) in the following order:—

1. The Chinese.
2. The Woburn or Bedford.
3. The Berkshire.
4. The Essex half black.
5. The Lincolnshire, &c. &c.

We ought not to omit to mention that the Neapolitan stock of swine have a very great aptitude to fatten. In the meanwhile, we copy from the Franklin Farmer, the following interesting letter from Samuel D. Martin, Esq. of Kentucky, on this subject, and it would seem, that as far as his friend's experiments have gone, that the Woburn breed of hogs, as we have stated, stand pre-eminent in that most valuable characteristic—quickness in taking on flesh.

A proposition to test the relative disposition to fatten, of different breeds of Hogs.

The hogs raised and fattened in Kentucky, it is believed, amount to more than two millions of dollars annually, and consume in the raising and fattening, more than a million of bushels of corn, besides rye, oats, wheat, and grass.

It would be of great value to the state, to have such experiments made as will test the value of the different breeds, and ascertain which is the best machine for turning our surplus grain into meat.

Some hogs will make double the quantity of meat out of a given measure of corn that will be made by others.

Therefore it must be very plain, that the persons feeding bad breeds must suffer considerable loss. No man should keep a bad breed, when he can get a better. But it is to be regretted, that sufficient experiments have not been made, to determine *clearly* which is the best breed.

I have made some experiments between the two most valuable breeds that I have, but they were not conducted in a way to be clearly satisfactory. I put two Berkshires and two Woburns into the same pen, and fed them together. The experiment resulted greatly in favor of the Woburns. But they were all fed in the same trough, nor do I know what was consumed by each.

In a trial lately made by William and Isaac Barclay, of Jessamine, between two boars, the Woburn gained

fifty pounds more in thirty days, than the Berkshire. But here again we have no account of what each consumed. The trial was made for the reputation of the stock, and it is presumed that both had as much as they would eat.

For the purpose of making a set of experiments that will be satisfactory, I would propose to the advocates of other breeds, to furnish Woburn hogs or pigs, barrow or sow, to be fed by some disinterested person, in such a way as to ascertain which will come earliest to maturity, fatten easiest, consume the least food, and travel best to market.

I would propose that two or three pigs be fed upon a certain allowance, and that the balance shall have as much as they will eat. That they be kept in separate stalls, and an exact account be kept of what is consumed by each one. To be kept in this way until they are ready for market, and one of each kind be sent to our most distant market, weighed at starting, at the journey's end, and after they are dressed. The balance to be sent to our nearest market, weighed before starting, and upon reaching the place have their gross and neat weights ascertained.

If my proposition should be accepted, each person to pay the proportion of the expense of the experiment.

If the above proposition is not accepted, I will feed a Woburn barrow, sow, or pig, against any other hog in the state that has no Woburn blood in it.

No proposition that has any thing like a bet or wager attached to it will be accepted by me, but I wish to feed to ascertain what the different kind of hogs will do. SAM. D. MARTIN.

The Management of the Soil.

The better the soil the less cultivation it requires, of course, to produce tolerable crops; hence, where the land is very rich, as is very commonly the case in this western country, we find in general a slovenly culture; where the ground is less productive, or worn by continual use, more labor and skill must be applied, as is now beginning to be the case in the west, to compensate for the want of natural fertility. The simplest cultivation is that of the spade, the hoe, and the rake, and on a very small scale it is the best; but spade husbandry cannot possibly be employed but little, where labor is so high in comparison with the price of produce. The plough, therefore, must be our chief instrument of tillage, and has been so in all ages and nations of which we have any records. The plough should, as much as possible, imitate the work done with a spade. It should cut a slice from the land by its coulter vertically, and by the share horizontally, lift it up, and turn it *quite over* by means of the mould-board; and the art of the ploughman consists in doing this perfectly, and with such a depth and width as suit the soil and the intended purpose. In rich mellow soils, a ploughed field should differ little from a garden dug with a spade. In tenacious soils the slice will be continued without breaking, especially if bound by the fibres and roots of plants; the whole surface will be turned over, and the roots exposed to the air. It is of great consequence that each slice be of the same width and thickness, and the sides of it perfectly straight and parallel. The plane of the coulter must be perfectly vertical, and that of the share horizontal, in order that the bottom of the furrow may be level, without hollows or *baulks*, which are irregularities produced by the rising or sinking of the plough, or inclining it to either side. There are various modes of ploughing

land, either quite flat, or what is termed in *lands*, that is, in portions of greater or less width, with a double furrow between them, somewhat like beds in a garden. Sometimes two ridges are set up against each other, which is called ridging; the land then is entirely laid in high ridges and deep furrows, by which it is more exposed to the influence of the atmosphere and kept drier; this is generally done before winter, especially in stiff wet soils. When the land is to be ploughed without being laid in *lands*, and all the ridges inclined one way, or in *sideling* hills, a plough which in England is called a *turn wrest plough*, is used, the mould-board of which is shifted at each turn from one side to the other. The laying the soil in *lands* is not necessary except in wet and flat situations, when the mould-board of the plough is fixed on the right side. When grass land or stubble is ploughed, care must be taken to bury the grass and weeds completely, (too uncommon in our practice, owing to inferior ploughs,) and the slice cut off by the plough must be turned over entirely, which is best done by making the width of the furrow greater than the depth. When the grass and weeds are rotten, and the ground is ploughed to pulverize it, a narrow deep furrow is best; the earth ploughed up is laid against the side of the preceding ridge, which forms a small furrow between the tops of the ridges, well adapted for the seed to lodge in, and to be readily covered with the harrows.

Nothing has divided both practical and theoretical agriculturists more than the question whether the land should be ploughed deep or shallow; but a very slight attention to the purposes for which land is ploughed, and to the nature of the soil, will readily reconcile these apparently contradictory conclusions. It is very desirable to be able to arrive at certain fixed principles in farming, and we should be very careful of entertaining too favorably *fanciful opinions* merely, of which we have too many throughout the agricultural press. We wish farmers to correspond with us, and to state their objections, if any, to our statements, and we shall be always ready and willing to yield to clearer truth or superior reasoning on these subjects, but we must be ever careful of plausible theories and garbled facts. A deep, rich, and stiff soil can never be moved too much nor too deep; deep ploughing brings up rich earth, admits the air and water readily, and gives room for the roots to shoot, whilst the rich compact soil affords moisture and nourishment. Wherever trees are to be planted, the ground should be stirred as deep as possible, *even in a poor soil;* for grass and wheat this is not always prudent; their roots seldom go above three or four inches deep, and if they find sufficient moisture and good earth, they require little more depth.

Whenever the soil below a certain depth, say 8 inches, is of an inferior quality, there can be little use in bringing it up; and where the soil is light and porous, the bottom had much better not be broken beyond 8 or 10 inches. Some farmers know this well, and are very careful not to break the *pan*, as it is called, in their light lands—that is, if light to a great depth;—this *pan* is formed by the pressure of the sole of the plough and the tread of the horses, and opposes a useful bank to the too rapid filtration of the water; it lies from 5 to eight inches below the surface. If it is broken, the manure is washed down

into the light subsoil, and the crop suffers, especially when sheep have been fed on, their dung being very soluble.

The great object in ploughing land is to divide it, expose every part of it to the influence of the elements, and destroy every plant or weed but those which are sown in it. To do this perfectly requires several ploughings and harrowings, or with cultivators, at certain intervals,—as in the wheat crop.

When the soil is good, with a porous subsoil, the greatest care should be taken not to go too deep; but where the soil is compact and impervious to water, but not wet for want of outlet or draining, it is useful to stir the soil to a great depth, but it is better without bringing it to the surface, which may be done with a plough without a mould-board following a common plough in the same furrow. This is an excellent mode of draining, and at the same time keeping a reservoir of moisture, which in dry weather ascends in vapors through the soil and refreshes the roots.

The mode in which the soil is prepared most perfectly for the reception of the seed is best shown by, after harvest, ploughing the stubble in. The winter's frost and snow mellow it, while the stubble and weeds rot below. In spring, as soon as the weather permits, it is ploughed again; the first ridges, if any, being turned over as they were before: this completes the decomposition of the roots and weeds. It is then stirred with harrows, or other instruments, which tear up the roots which remained, and some of these, not easily destroyed, are carefully gathered up and burnt, or put in a heap to ferment and rot, a portion of quick lime being added. Manure, if required, is then put on, and immediately spread and ploughed in; the land is then prepared for the seed. In a former number on the subject of stirring the ground, we alluded to the favorite theory of Jethro Tull, in England, that labor might entirely supersede the necessity of manure, hence the origin of what was called the horse-hoeing husbandry, which at one time, was so highly thought of as to be called, by way of distinction, the *new husbandry*. But this, like many other new things in agriculture, was not infallible—at first the result was highly satisfactory; all the soil, by exposure to the air, was converted into soluble extract, and taken up by the plants, which throve well as long as the supply lasted; but in the end it was exhausted, and it was found by all who tried it that pulverizing alone will not restore fertility. But the system of frequently stirring the ground, when united with judicious manuring, has, however, ever been found a great improvement in agriculture.

Poultry, and rearing Chickens.

No one can imagine, until they try it, how advantageous a thing it is to have a good close tight poultry house, fitted up in a proper manner, with setting boxes and roosting places. In the winter season, the warmer hens are kept the more eggs they will lay;—indeed, only one dozen of hens, well lodged and well fed, will supply, during that inclement season, a small family. A spare cellar will answer well for this purpose, provided it is under an out house—for it would not answer under a dwelling house, on account of vermin. The apartment or house may be about 18 by 20 feet square, and the height about 8 feet. The roost should be made sloping from the roof to within 2

feet of the ground; twelve feet long, by six feet wide. The roost is made in this simple way, according to a plan recommended in the Albany Cultivator; take two pieces of two inch plank, six inches wide and twelve feet long, and fasten them parallel five feet apart by a spike or pin to the joist above, the lower end resting on a post eighteen inches or two feet above the ground.—Notches are made along the upper edges of these planks, one foot apart, to receive sticks or poles from the woods, with the bark on. When it is desirable to clear out the roost, the poles being loose are removed; the supports working on a pivot, are raised and fastened up, clear for the work of clearing out. It is found that if poultry have always food ready supplied for them, such as corn and oats, in different places suitable for feeding, they eat less; as when it is thrown to them there is a general scramble, and each fills itself too much. The writer in the Cultivator states, that he has sixty chickens, and they eat about six quarts a day of corn, oats and buckwheat, in the proportion of twice as much corn as the other grain. We find also this proportion of food ample. In the roost there should be a trough of water, renewed every other day; with pounded bones, and lime and ashes. A row of nests should be constructed after the following plan, and it answers well. It is a box ten feet long and eighteen inches wide; the bottom level, the top with a tolerable slope to prevent the chickens from roosting on it; the top open on hinges. The nests, eighteen in number, are one foot square; the remaining six inches of the width is a passage way next to the wall, open at each end of the box, and another opening midway of the box. The advantage is to give the hens the *apparent* secrecy they are so fond of. We prefer all the nests to be on the ground, on account of the young chickens falling from those which are elevated. There ought to be sufficient windows for a good draught of air in summer. The door ought to have a small opening at bottom for the admission of the fowls when the door is shut. There is a fault generally committed by raisers of poultry, by not having roosters enough; there should be at least one rooster for every ten hens, but the produce of eggs and chickens would be much increased by having one rooster to every six hens. Chalk in imitation of eggs answers well for nest eggs. In making the nests, short and soft straw is to be preferred, because the straw being long, the hen on leaving her nest, will be liable to draw it with her claws, and with it the eggs. Eggs for setting should never exceed the age of a month, the newer to be preferred, as nearly of a size as possible, and of the full, middle size. The eggs should be marked with a pen and ink, and examined when the hen leaves her nest, in order to detect any fresh ones which she may have laid, and which should be immediately taken from her, as they, if at all, would be hatched too late for the brood. Eggs broken in the nest, should be cleared away the instant of discovery, and the remaining washed with warm water, and quickly replaced, lest they adhere to the hen, and be drawn out of the nest: if necessary, the hen's feathers may also be washed, but always with warm water. It is proper to place corn and water beside the setting hen, whenever it may appear necessary to encourage steadiness of incubation, and to support their constitutions. The hatching

of the brood must be watched on the expiration of the term, (twenty-one days,) in which the state of the weather may make some hours difference. Assistance in hatching must not be attempted prematurely, but only in case of the chick's being plainly unable to extricate itself. The chickens first hatched are to be taken from the hen, lest she be tempted to leave her task unfinished. Those removed may be secured in a basket of wool or soft hay, and kept in a moderate heat; and if the weather be cold, near the fire. The whole brood being hatched, the hen is to be placed under a coop abroad upon a dry spot, and if possible, not within reach of another hen. The first food, bruised corn or corn meal, dry. Eggs boiled hard or curd chopped small, are much approved as first food. Their water should be pure and often renewed; a basin whelmed in the middle of a pan of water will prevent them getting into the water, which often by wetting their feet and feathers benumbs and injures them. It is not necessary to coop them beyond two or three days. They must not be let out too early in the morning whilst there is a heavy dew in cool weather. Insects and animal food form a part of the natural food of poultry, (beef liver is very good for them,) and are medicinal to them in a weakly state, and the want of such food may sometimes impede their thriving. To fatten your fowls speedily, confine them in a large airy enclosure, and feed them on broken (or cracked) Indian corn. Give them Indian meal or mush, with raw potatoes cut into small pieces, not larger than a small nut, or boiled and mashed with boiled rice; placing within their reach a quantity of charcoal broken into small pieces, promotes a rapid digestion of their food. By this method they will fatten in one half the usual time. Sun flower seed is highly recommended by those who have tried it as food for poultry, and even sheep and pigs. We have always found the best remedy for the *gapes* to be:—taking as much soft soap as will cover the thumb nail, and having mixed it up with some meal dough, give it to the chicks at any stage of the disease; if it should fail on the first application, it very rarely does on the second.

The fowl house should often be cleared out, and sand or fresh earth should be thrown on the floor, to get rid of fleas and lice. It is good to fumigate the house occasionally by burning dry herbs, as pennyroyal, or even brimstone. For this fine fowls, and plenty of eggs will be the reward. To prevent the hens from roosting on the trees in winter, it is only necessary to confine them in the house for two or three nights, and they will then ever after take up their roosting abode there. We will touch upon this subject again, as occasion may offer, for the above remarks are merely sketchy.

Profits of Agriculture.

Agriculture is so healthy, so agreeable, and so moral an occupation, that it can never be extremely profitable; the competition for, as well as the quantity of land in this country, will always prevent this. The butcher and cattle dealer will always, if successful, make far greater profits than the farmer; and a decent livelihood, with a moderate interest on the capital laid out, with the high price of labor here, is the most that a farmer can expect, even with the greatest assiduity. If he neglects his busi-

ness, and leaves it to others less interested in the result, he must be a loser. Gentlemen who cultivate a piece of land for pleasure, and employ agents, are fortunate if they get a moderate rent after paying expenses. For careless farmers, the simplest system alone can prevent great loss; and grass land may be profitable in the hands of a proprietor, who would probably be half ruined if his land were all arable and in his own hands, on account of the expense of hiring laborers, &c. We cannot expect to enjoy all the good things of the world in perfection, and at the same time—if a farmer has a majority of the blessings of life, he ought to be satisfied, and not be anxious for great wealth, which, after all, is too often a sad curse to the possessor. It is no doubt true, what Mr. Paulding says, that nothing is more easy than to grow rich. It is only to trust nobody—to befriend none—to heap interest upon interest, cent upon cent—to destroy all the fine feelings of our nature, and be rendered mean, miserable and despised, for some twenty or thirty years, and riches will come as sure as disease, disappointment, and miserable death.

Treatment of young Pigs.

Every one who has swine and has bred young pigs, must have remarked how common a thing it is, when they are either taken from the sow, or are weaned by her, for them to fall off in condition, stare in the hair, and become unnaturally large in their bellies, and this too, when they have plenty of food given to them, particularly cow's milk: this latter article appears to be the cause of much of the mischief. To remedy this evil, it is advisable, while they are sucking, to accustom them to feed in a small trough shut off from their mother, and to supply them with boiled potatoes mashed, with perhaps a little meal, to be given in small quantities at a time, about three or four times a day, sometimes adding a little milk from a new milch cow. The cost and trouble of this plan will be found to be amply repaid in the superior shape and thriving of the young animals; for pigs, like any other creatures, when ill treated or stinted during the first part of their growth, can never be made afterwards what they would otherwise be with a plentiful supply of proper nutriment. This plan is especially worthy of adoption with fine bred pigs, for what is the use of our importing the best breeds of animals, if we do not keep them up, or even endeavor to improve upon them as much as possible. Common stock well kept and attended to, is better than the finest, neglected. We should not as farmers be afraid of a little extra trouble, or leave our beasts to a state of shifting for themselves. This applies to every description of live stock, even our poultry, for if they are well fed and attended to, they richly reward us for our pains.

Flemish Husbandry.

This is known to be perhaps the best, for lands not naturally rich, in the world. It proceeds much on the principle of manuring well and weeding clean. Much more manual labor is bestowed than with us on account of a dense population, and their crops seem more certain, varied, and abundant. That it is not unprofitable we may conclude from the wealth of the farmers, the comfort of the laborers, and the slick

appearance of the cattle. After ploughing into *lands*, or not, as we do, every intervening furrow is deepened and cleared with the spade, the earth being thrown over the bed sown. Liquid manure, (which is sadly thrown away both in England and America,) chiefly the urine of animals and drainings of dunghills, is carefully collected, and is carried on and distributed over the poor light soils, by means of water carts, before sowing, and again when the crop is come up. By these means, such lands are made to yield crops of rape seed, clover, lucerne, flax and wheat, equal in luxuriance to those on the richest soils. Fallows are rendered unnecessary by the careful destruction of weeds. In short, it is a garden culture on an extended scale. All the land is in tillage, except where rivers occasionally overflow, and render the meadows rich and profitable. The cattle are mostly kept in stalls, and fed with green food cut and brought to them; by which means one acre of clover, lucerne, or other artificial grass, will maintain five times as many beasts, or more, as an acre of good pasture; but the great object is to increase manure, especially in a liquid state, which is carefully preserved in reservoirs, without loss or waste, till wanted for the land. This system is also followed in *Switzerland*, which, considering its soil and climate, is one of the best cultivated countries in Europe.

General management of Hogs.

Every reflecting as well as every good practical farmer, except in the first settlements of a new country, where want of time may be a good excuse, has now found out that much less corn is required if hogs are kept in pens and small lots, in a state of comparative rest, than when suffered to run at large; and that much less food will suffice, if ground or boiled, (better to be both,) than when fed raw or whole. The addition of salt, and finely pulverized charcoal to all their food, when full fed, will promote digestion and fattening, by its influence in correcting acidity and foulness of the stomach. They should have constant access to clean water in a trough, so situated that only the snout can be introduced. A plentiful warm soft bed kept dry by sufficient shelter, (great warmth in winter is nearly one third of their food;) outside of which there should be sufficient yard or pen room, which they will visit to deposit manure, and for exercise: in this place there should be planted, leaning to the animal, a sufficient number of rubbing posts, either made rough or covered with a very rough bank;—this direction is important to be attended to. A very successful farmer in Pennsylvania, after some years' experience, declared to us, that by boiling all his food he has a vast profit in fattening swine, (we have also found this out,) saving at least one half of the expense; he puts his hogs in the summer into a large roomy pen; he cuts clover from an adjoining lot, their chief food at first, which is thrown into a large boiler or kettle; the refuse of his garden is occasionally added, as under leaves of cabbage, beets, apples;—nothing is permitted to be wasted;—pumpkins as they ripen in the fall, *artichokes*, kitchen slop, refuse, &c.; to which is added as much bran or meal as will give some consistency to the whole, which being well boiled, is thrown into a large swill tub fixed for the purpose,

and allowed to sour a little, and when cold, is given to the hogs, and greedily devoured. They are thus made very fat on the least expensive articles; gradually he increases their quantity of Indian meal, and a few days before killing, gives them only the pure Indian mush. The advantages derived from this method we think worth notice by our farmers, except those who raise two or three hundred hogs on the grazing system on large farms. There is another point connected with this subject which is also worthy of attention—all persons experienced in feeding young *animals* must have observed, that rapid growth and laying on fat are inconsistent with each other, and cannot be effected at the same time; and that fattening animals gain much more in weight from the same food than young growing ones; that growing animals are consequently fed to great disadvantage with a view to fat or weight for sale; that very many animals not fully grown take on growth instead of fat when first full fed; that this rapid growth, if promoted by continued feeding, will soon have a check, when the disposition to fat immediately succeeds, and that full feeding on light food best promotes growth, rich food fat.

Hence by the method above stated, so many of our hogs as are disposed to grow, are at first put forward by cheap fare, and increase greatly in size, all having acquired the best possible fattening disposition, (next to the natural tendency to thrive peculiar to each breed,) the temporary growth being brought to a check before they get meal in any considerable quantity; thus the corn, whether boiled or in meal, *when given*, is all deposited upon the animal in form of fat. There is a greater saving from these means than any will believe, until they have made trial, compared with the very common method of putting lean hogs immediately on corn alone for the purpose of getting them fat in a short period in the fall. Hog pens and lots should be so contrived as to be within a convenient distance of the dwelling house, and yet not so near as to create any nuisance from smell or noise. They should be partitioned off with proper fences, so as to have different pens opening into lots of grass or clover, (young pigs not being allowed to run in rank clover on account of the injury they receive from the wet and dew,) the boar, the sows with their pigs, and the young weaned shoats, should severally possess lots and pens to themselves. The young pigs should be so managed as to have food through an opening in a fence connected with a pen, inaccessible to the mother, or larger pigs. The boar especially must have a pen and lot, (the latter for the sows at a proper time, March and August, being let into him,) separate from all the rest. There must be small houses and shelters in each of these pens made especially warm and comfortable in winter. All these arrangements will vary a little of course, according to the means of each farmer, and the circumstances connected with his situation and conveniences; but something like this each farmer ought to have, if he wishes to avail himself of all the profit and success he can attain in his occupation, and if he has an improved breed of hogs, or wishes to improve those he may possess even of the common kind. *Boiled* food of almost *any kind* will answer well for hogs. Some persons, we are told, in the East,

feed their hogs all winter chiefly on boiled clover hay, and which keeps them in good condition. The clover is put up almost as green as possible, by putting half a peck of salt to every load. The way to put it up as green as possible, is to cut and leave it the first day exposed in winrows six hours, then to cock it at night; then open next day at 10 or 12 o'clock, and towards evening haul it home.

Milking Cows.

When cows are in good pasture and their udders full, particularly soon after calving, they will yield nearly as much at each milking, if milked three times, as at each milking if only milked twice, daily, and will give better milk and be prevented from drying. The udder when full gives pain, becomes heated and feverish, the milk is either absorbed or the secretion ceases, and nature causes a partial drying or diminished secretion to protect the cow from future suffering. Hence those who neglect to relieve a full udder by milking three times a day when cows have newly calved, suffer great loss in the worth of their cows, both for for present and future use; and it must also be borne in mind that the smallest portion of milk left at each milking tends also very much to dry up the cow. The teats should also be drawn by a steady, gradual yet quick flowing movement. It is a good practice to send or direct a person to strip the cows in fifteen minutes or half an hour after milking them as dry as possible. This practice causes an increase of milk, besides, a pure cream is obtained by the stripping. That which is allowed to remain contributes to dryness—remove it, and an increase is the consequence. Always give cows as mild usage as possible; gentleness and soothing with them will be well repaid. A cow never gives down her milk pleasantly, and never *all* of it to the person she dreads or dislikes. It is a good practice for the hand that milks to administer often salt, and give other evidence if possible of kindness. If the udder is tender, foment it with cloths dipped in warm water previous to milking. Another hint to farmers—even a cow dropping a premature calf, may by careful milking be brought to yield good milk, —small in quantity at first it is true, but with care will increase until she become a tolerably profitable milker.

The first third and the last third of the milk taken at one complete milking, will, if kept separate, prove the last third to yield *six* times as much cream as the first; and the better quality of the last is quite as remarkable as the quantity. The color of the two differs, the first being thin and white. That portion of cream which rises first from the milk is also richer and greater in quantity than is afterwards given in the same space. Milk that is suffered partly to cool before it is put into the pans to settle for cream, never yields so much and so rich a cream as if put into the pans immediately after it is taken from the cow. And if carried far, the same evil will happen to a very injurious extent. Hence cows should always be near the dairy when milked, and hence also when prime butter is wanted, use only the last of the milk and the first of the cream.

Let us never cease persuading our Legislatures to pay attention to the encouragement of agriculture.

Entomology, or the Study of Insects.

Although the last ten years have done much amongst agricultural papers and practical cultivators of the soil and of fruit trees, for the science of insects, which infest our gardens, orchards and farms, yet we much wonder that it is so much neglected, and not even equally cultivated with its sister science, Botany, with which it possesses innumerable objects of interest in its application, and contributes so largely to the necessities and comforts of man. The objects of the science appear to comprise, first, a systematic knowledge of the species and their subdivision into genera; and, secondly, the history of each species, which will contain the detail of its changes, anatomy, habits, economy, instinct, and mode of propagation. The great object of this knowledge amongst agriculturists is that of curbing the injuries inflicted by them, by teaching us to restrain their diffusion. The knowledge of the species being thus evidently the basis of the science, it is important that their differences should be properly characterized, and the character also clearly determined, which group them, apparently naturally, into genera; and these also should be as obvious and perceptible as it is possible to make them. Unfortunately in this science, the minuteness of many individuals, and their delicacy of organization, place great difficulties sometimes in the way of investigation, the results of which, we fear, are but imperfect demonstrations of positive facts. But we must all endeavour to be encouraged to the observation of facts, for all natural science is wholly dependent upon them.

Taking a general view of insects, we find that most of them lay eggs; of course, the first state in which insects appear, is that of an egg. The eggs are of a great variety of forms; some covered with membranes and others with a shell. They are generally in bunches of different shapes. The little insect, caterpillar, or *larva*, remains in the egg for different periods: some continue enclosed only a few days, others the whole winter, until the leaves they feed upon come out. The larvæ of caterpillars vary very much from each other, according to their kind; those of butterflies are called caterpillars, those of beetles are called grubs; the larvæ of flies are called maggots. Some insects undergo no change of shape at all from the egg, but come from the egg complete in all their parts, and only cast their skins afterwards, until they are like the parent animal. In the larva state most insects are very voracious. In their perfect, or butterfly state, some eat very little, whilst others not only consume a great deal, but are very destructive in their operations, as the curculio, which punctures plums, cherries, &c. causing the fruit to fall off before ripe.

When the larva is about to change into the chrysalis or *pupa* state (in this condition it also varies much in form,) it ceases to feed, and having placed itself in some quiet situation, it casts its skin, and in a few hours appears in the different form of a chrysalis or pupa. In the beetle tribe the chrysalis is furnished with short legs. In the butterfly tribe it has no legs. In most of the fly tribe, it is perfectly oval, with hardly any motion or distinction of parts. The pupa of the bee is not so shapeless as that of flies, exhibiting the faint appearance of legs. The sexes of insects are commonly male and female, but neuters are found among those which live in swarms, such as bees, ants, &c. The majority of insects live only for about a year, and some do not live half that time, others do not live many hours; but this latter time only applies to those in their complete form, for the larvæ or grubs of these live a long while under water, which live longer than land insects. Bees, however, live a long time. The arrangement of insects according to the Linæan system, which is considered the best, is divided into seven orders, viz: 1, coleoptera; 2, hemiptera; 3, lepidoptera; 4, neuroptera; 5, hymenoptera; 6, diptera; and 7, aptera. The

coleoptera have a horny case under which the wings are folded. This order is divided into *genera*, the principal of which are beetles, lady-birds, and weevil, (curculio kind.) As we before stated, all the beetles, like other winged insects, live for some time in the form of grubs. These, as those of the garden beetle, cock-chafer or brown cased evening insect, live under ground, and consuming the roots of plants, are, when numerous, very destructive to meadows. The larvæ of some of the weevil tribe, a kind of curculio, infest granaries, others are found in the germ of wheat, artichokes and thistle flowers; the perfect insect which we call the curculio, having perforated the plants as it does the fruit of the plum, cherry, peach, &c.

When land is ploughed up in the spring, every farmer has seen hundreds, if the weather is warm, of the cock-chafer grubs, which the poultry and wild birds will greedily devour. Many wild birds should never be shot on account of the good they do in destroying noxious insects as well as their grubs, &c.

The *hemiptera* are all furnished with wing covers, of a softer texture than the coleoptera; in some, the wings nearly cross at the tips; the mouth is either situated in the breast or inclining towards it. The principal genera of this order of insects are the cockroach, locust, grasshopper, (a species of locust) bed-bug, &c. The favorite food of the grasshopper is clover and Indian corn: of the latter they devour the part which is called the silk, the immediate means of fecundating the ear, and thus prevent the kernel from coming to perfection. But their voracity extends to all vegetables, even to the tobacco plant and the burdock. Another of this order is the plant louse, puceron or vine fretter, (aphis.) The males are winged and the females without wings. In the spring they produce their young alive, in the Fall they produce them by eggs. (Such is the wise plan of Providence to obviate the destructive effects of winter upon them.) Water, dashed with force from a syringe or engine, will destroy them on trees; and smaller plants may be washed with lime-water, with tobacco water, with elder leaves infused in water, or with common soap suds, any of which will destroy the insects. Rose trees are much infested by a species of this aphis. The best way is to cut the shoots off in time before the eggs are deposited.

The *lepidoptera* order contains the butterfly, moth, (of the silk-worm as of others) and hawk-moth. These are well known: one of the night-moths, is the miller, as it is called, so destructive to bees.

The *neuroptera*, or nerve-winged insects, have four naked membranaceous wings, but no sting, and without down and transparent. Most of them are either inhabitants of, or resort to, water: among them are the dragon-fly, the day-fly or ephemera, which lives but a day, and some never see the light of the sun, being produced after sunset and dying before dawn. All their enjoyments, excepting coition, are confined to their larva state.

The order *hymenoptera*, or four-winged insects, with stings, includes the gall-insect, wasp, bee, ant, &c.

The *diptera*, or two-winged insects, have two wings, and behind or below them two globular bodies, supported by slender connections or pendicles. Flies, strictly so called, gad-flies and gnats belong to this order. The gad-fly, (æstrus,) is a genus very troublesome to horses, cattle and sheep, in and on the skins of which they deposit their eggs, which soon change into larvæ, that feed under the skin, and often line the stomachs of horses, under the name of *bots*. The Hessian or wheat-fly, twelve of which have been observed at one time laying their eggs in a single ear of wheat, is often productive of serious injury to the crops. These are sometimes kept within due bounds by several natural enemies, particularly the ichneumon tipulæ. The eggs of the Hessian fly are very small. The common flesh-fly is amongst the genera of this order,

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which deposits its eggs on meat. The gnat belongs to this order.

The *aptera*, or insects without wings, is composed of genera of such varied forms, that no general characters can be affixed. This includes the louse, the spider, &c. &c.

The preventive operations against insects are those of the best culture in the most extensive sense of the term, including what relates to choice of seed or plant, soil, situation and climate: if these are carefully attended to, it will seldom happen that any species of insect will exist to any injurious extent. But climate and unaccountable increase of insects, as grasshoppers, locusts, &c. are often beyond our control, in either remarkably dry or very long continued wet weather. Excessive waterings, strong application of water with a syringe or garden engine, violent shaking small trees; these will annoy and injure insects. Insects may be further annoyed by throwing on them acrid waters or powders, as tobacco water, lime water, powdered quick lime, soot. ashes, &c. The smell of tar is particularly offensive to various moths and butterflies, and if a little of it is placed under plants, or if they are watered with tar water, these insects will not lay their eggs on them. It is also said that if shreds of cloth or flannel are hung in the forks of trees or plants, moths and butterflies, (especially the plum fly or curculio) will lay their eggs or shelter themselves under them. The effect of the fumes of tobacco, sulphur, urine, &c. are well known. Saline substances, mixed with water, are injurious to most insects with tender skins. as the cut worm and slug; and hot water, where it can be applied without injury, as in the lower part of the stem of peach trees to destroy the worm, is equally if not more powerfully injurious. Water heated to 120 or 130 degrees will not injure plants whose leaves are fully expanded, and in some degree hardened; and water at 200 degrees or upwards, may be poured over leafless plants. The only plans that have yet been discovered with any good effect against the curculio or insect that punctures the plum and causes it to fall before ripe, is either to pick up all the fruit that has fell, and carefully burn them, or to plant your trees where swine can be turned to eat both the fruit and the larvæ it contains. It is a very shy insect, and flies a very little distance; therefore your neighbors insects cannot much affect *your* fruit. Caustic lime, sowed over wheat when the dew is on, is the best remedy against the Hessian fly, or to plant between the first and last autumnal frosts. The peach worm is best destroyed with boiling water, poured round the stem of the tree, with the application of ashes, coal ashes, sand and sulphur, urine, &c.; to be done every year. The webs of caterpillars can be destroyed by hand or by firebrands. The cut worm can be prevented, by ploughing in warm days in fall or winter, when there are frosts at night, and by mixing a very small quantity of quick lime with ashes and putting it round plants; or they may be protected with hickory or other leaves stuck in the ground encasing their stems. A peck of ashes piled at the stem of apple trees will protect from the borer. Snails, slugs, and worms may be annoyed by caustic substances scattered over them, or by watering with bitter infusions, acids or alkalies,as vinegar or lime-water. The knowledge of insects, as they affect our crops, garden, and fruit trees, is one which is at present quite in its infancy, and much good may be done by a more thorough investigation of their habits and propensities. We trust that any facts which may become known to farmers and gardeners on this subject, will be cheerfully communicated to the Western Farmer, with all other interesting points of information, for the welfare of agriculture and horticulture.

Debt is the worst kind of poverty.
Promise little and do much.
Seek not a good man's pedigree.
A wager is a fool's argument.

From the Practical Farmer, Gardener and Housewife.

Scarifier.

The practice of scarifying grass lands is rather of late date, but it is very beneficial, as it conduces greatly to increase the quantity of hay by loosening the surface, so that the roots have fresh power of vegetation, and being cut, they are found to throw out new shoots. The use of the Scarifier is particularly advantageous before the laying on of manure, by the ground being opened so that the roots immediately receive whatever quantity of manure may be laid on, by which means a saving in that important article is effected, as a small quantity, so applied, goes as far as a much larger proportion strewed after the old practice. The annexed cut has been made from an original drawing. It is a cheap and effective implement, that has been employed with great success.

Grass lands may be much improved both in the quality and amount of the herbage, by cutting them three or four inches deep with a common Scarifier, which cuts the surface in slips of a few inches asunder. but without raising or turning them. Manure being at the same time laid on the land, is carried down by these incisions to the roots of the plants, and thus supplies them with immediate nourishment. But it is not merely in this application of the manure that the advantage consists—it loosens moss-bound sward; and by dividing the roots of the grass, it occasions them to throw out new shoots, by which the herbage is not alone increased, but rendered more succulent and palateable to cattle. The operation should be performed early in the spring. The field should first be cut lengthwise, and if very poor also across. Grass seeds should then be scattered; the top dressing should be applied, and the field should be well bush-harrowed and rolled. Bush-harrowing and rolling meadows is always very beneficial in the spring, and, after cattle have been removed, the bush-harrow spreads the manure, and the latter by pressing the grass, occasions it to acquire a thicker bottom.

Extract from "Wanderings in the West, in 1839," of an Eastern Traveller.

"Agriculture is not pursued with economy or neatness in the west. Farmers give their attention chiefly to the cultivation of grain. Roots are very little cultivated. A few potatoes, beets, English turnips, and onions, are raised, but no large crops of either. Many farmers who raise 500 bushels of corn will not have more than 20 bushels of potatoes. In the far west but few think of raising roots for cattle, as far as I am acquainted. The soil appears admirably adapted for roots. Gardening is very little attended to. Most farmers raise a few vegetables, but a regular garden is very uncommon in the west. Fruit trees flourish remarkably well throughout the whole western country, and in the older settlements there are fine orchards of apple and peach trees. The horse is a favorite animal in all the western states, and the farmers generally take pains to rear horses of good blood. The horses generally are lighter than in Pennsylvania, but more active. Very little attention is paid to the breed of cattle, except in a few districts. The quality of cows is not generally a matter of

much concern. Hogs are very plenty, and the farmers in Ohio, Indiana and Illinois rely upon them principally as the means of obtaining money. They are generally of a *miserable breed*, long-nosed, long-legged animals, apparently better fitted for running than for any other purpose. They go at large upon the commons and in the woods, living upon grass, mast, &c., till autumn, when they are fed a little while with corn, and when ready for market the average weight is about 150 lbs."

It is sometimes a good thing for us to see ourselves out of ourselves, or to have the mirror held up to us to catch the "follies and the fancies" of *agriculture*, as well as "of our nature as they rise." The above picture of ourselves we take in all honesty and candor to be a pretty true one; of course, in these cases, our vanity always happily excepts number one, by some ready subterfuge or other, and we ever very charitably saddle all such sweeping and general stigmas as those just quoted on our neighbors; yet notwithstanding, we cannot but subscribe to the truth of these remarks of our Eastern traveller upon our western country: he might in truth have added much more; for instance, he might have stated, that the "miserable breed of long nosed, long-legged" swinish animals, he speaks of, not only do not go beyond an average weight of about 150 lbs., but that they also consume at least double the quantity of food the improved kinds do, to make them reach that weight, even when in tolerable order from the mast, and when that fails, we shall not think we are "drawing a long bow," when we affirm that we consider that the quantity of food they will consume to make them fit for market, is three times more than any *tolerable* breed of hogs. It is not necessary to state that the fat of mast fed swine is of a very indifferent character, going easily to oil, and even when corn succeeds the mast, the *corn fat* is only laid over the *mast fat* in thickness according to the quantity of corn fed. We trust, however, notwithstanding the general truth of the traveller's picture of western farming, that there is now a spirit and feeling abroad on the subject of agriculture, gardening, education, stock, &c., which in ten years hence will be felt throughout the country to such an extent as that when about that time another traveller shall pass through it "taking notes," a very different story will go forth to the world, and the west will have made such strides towards improvement in agriculture as she has already done in other things, with such "seven league-booted" velocity.

Roots for Stock.

The value of Roots compared with Hay.—On this subject there are various opinions, and as root culture is comparatively recent in this country, we cannot make any estimate satisfactory to ourselves.

Some farmers say one ton of hay and one of roots are worth as much as two tons of hay; others say two tons of roots, and others three, and others four tons, are equal to a ton of hay.

We will reckon two and a half tons of roots equal to a ton of hay for stock, though we think that when the quantity of roots is not large, compared with the hay, that the quantity of roots for a ton of hay is large.

We will reckon 49 bushels of roots to the ton (2000 pounds) which will be 50 lbs. to the bushel. Most kinds of roots weigh more than this. We have weighed potatoes, and find that they weigh 64 lbs. to the bushel. By a statute of Maine they must weigh 65 lbs. to the bushel. Large sugar beets and heavy turnips will weigh over 60 lbs. to the bushel. But small beets, turnips,

carrots and parsnips, if the roots be very long, will weigh much less. As potatoes are round, or nearly so, a bushel of small ones will weigh a little more than large ones, as we have found by experiments. We think that for roots of different kinds and sizes, that the average weight will be about fifty pounds to the bushel.

THE VALUE OF ROOTS COMPARED WITH GRAIN.—On this subject, too, opinions are very different. A calculation suited to a medium between extremes would be four bushels of roots to one of corn—three, or three and a half bushels to one of barley—two bushels to one of oats. We do not give this estimate with great confidence in its correctness; intelligent farmers differ much on either side.

THE PRODUCE OF ROOTS COMPARED WITH GRAIN AND HAY.—In a preceding number we stated that an acre of land that would produce 50 bushels of corn would produce 600 bushels of roots. The crop of roots being 12 bushels to one of corn, and four bushels of roots being equal to one of corn, the produce of an acre of roots would furnish three times the food for stock that would be furnished from an acre of corn, and the expense of raising would differ but little.

Besides the greater profit in getting three times as much food from roots, the roots will exhaust the soil much less than grain, and there will be the double advantage of improving the farm, by less exhaustation, and having three times the manure to apply to the soil.

A ton and a half of hay per acre is probably as large a crop as 600 bushels of roots, and if one ton of hay be equal to two and a half tons, or 100 bushels of roots, then the produce of an acre of roots is four times as much as it is in hay: of course the root crop would produce four times as much manure to enrich the land, while the crop is no more exhausting than that of hay.

If root cultivation be entered into largely, farmers would not find it necessary to raise less hay as their stock would be greatly increased, and would be fed partially on hay, but the improved condition of land consequent on roots, would produce the same amount of hay on less land. Nor would it be necessary for the farmer to raise less grain excepting for stock; for his land would gradually become richer and more productive, so that he could raise as much grain and hay as usual, and yet raise large quantities of roots without cultivating any more land. All kinds of crops might be doubled, or including roots there might be raised twice the amount of produce from the same farm; and twice as much stock could be kept, and in better condition, too; then of course there would be double the quantity of manure to apply to the soil annually.

If twice the amount of produce could be obtained, as it would not require twice as much labor, and in some cases but little more, then of course the farm would afford more than twice the profit—in some cases, three times the profit. For if a farm can be worked for $300, and it yields $400 worth of produce, if the amount of produce can be doubled, and the labor performed at an additional expense of 50 per cent., which could be done; then the expense for labor would be $450, and the value of produce be $800, which would give more than three times the profit.

We are aware that these estimates, and the conclusions drawn from them, will appear incorrect and whimsical to those who have not attended to root culture, so as to appreciate its great importance to the farmer; but those farmers who have experience in this business, will agree with us on its general and great advantages, though they may not agree in all the particulars in our estimates. Some would make a calculation more favorably to root culture. We have endeavored to get a medium between the wide extremes, as they are given by practical farmers, who from various circumstances form different opinions.

In conclusion, we would say to every farmer, raise roots for stock; if not prepared to raise many, begin in a small

way and raise a few hundred bushels which can be obtained from half an acre of land, and then increase the quantity to thousands of bushels; and the consequence will be, fine pork, beef and mutton, an increase of stock, and a greater profit according to the number, more productive lands, until the value of your farm and your profits are doubled and trebled.

That this may be accomplished by a proper management without any outlay of capital, is evident from facts, numerous, plain and conclusive.

Yankee Farmer.

From the Franklin Farmer.

Clover and Timothy.

Bourbon Co., June 23d, 1840.

Dear Sir: I have found timothy to be the best grass for meadow, and its productions from land near half worn by cultivation are greatest. When the land is fresh and strong, its growth is too rapid and luxuriant, and then the grass is apt to fall, which destroys it, especially if it does so any length of time before it is fit to cut. If the hay is wanted for its seed, to be used in sowing pasture lands, red clover and blue grass seed ought to be mixed with the timothy seed when the meadow is sown; but if the hay is wanted for stable use, only timothy without any mixture is to be preferred. The proper time for sowing meadow is the first of September, and to secure as good a set as possible, the ground must first be ploughed, then pulverized and made level with the harrow, the seed then to be sown and lightly harrowed or brushed in. When meadows are indifferently set, or are about to run out, they may be re-set and made excellent, by feeding timothy hay over them, and tramping it in with stock during winter, and they may thus be kept good for any length of time, if the seed on the hay was ripe when cut.

There is great diversity of opinion about the proper season for cutting timothy for hay. My opinion is, that it should be cut whenever the meadow begins to assume a light brown appearance. Many persons think it is best for it to stand much longer; some say until the seed begins to drop, while others suppose it should be cut as soon as it drops the blossom. It will not do of course to adopt the last opinion, if seed is wanted. My experience has taught me that if cut when it is of a light brown color the hay not only has good seed, but contains more nutriment, and is better relished by stock.

Timothy should be cut close to the ground, smooth and even, for it is well known that one inch at the bottom of a timothy stack is worth more than six inches at the top as provender. It should not be long on the ground after cutting, as it will be injured by the sun and dews as well as showers of rain. A few hours' open sun is enough to prepare it for the cock, where it ought to stand five or six days before it is put in the stack or mow.

In some countries, red clover is extensively used for hay, and has been tried in this, but abandoned because it must be cut in June, when the farmer is busy with his corn crop, or is engaged in harvesting his small grain, and because it is a grass that contains a large quantity of watery sap, and requires much care and labor to cure it, and if not well cured before it is put up, it mildews and becomes worthless: besides June is usually a month of showers, and on that account is unfavorable for hay making. Blue grass has also been tried, but like clover it is now but little used for hay, except when mixed with timothy, and this mixture should only be resorted to for the purpose of obtaining seed to sow upon land for pastures; for when so mixed, the blue grass soon takes entire possession of the ground. If any one is disposed to make a trial of blue grass for meadow, the trial need not be made, except on rich, moist land, and the cutting to be delayed until September, because it is not the stalk which bears the seed that affords the hay, but the blades that spring from the ground and which continue their growth from April till October, and some seasons even later. On a suitable soil, it gives

a heavy swarth, matted together like wool; it is hard to mow and loses much of its weight in curing. It takes more time and is more difficult to cure than timothy, but when well cured without rain, it has a bright green color, and is relished by every description of stock.

I have found the following to be the best method of sowing red clover. Let your land be in rye, the surface made level with a harrow when the rye was sown, and in the spring of the year when your rye is sufficiently advanced for pasture, scatter your clover seed, turn on your stock, and when the seed is about to germinate, take your stock off. This plan will not do well for timothy, because it has not time before the heat of summer, to get root enough to enable it to stand that trying season on all young grasses, when the top root of the clover is quite sufficient for it. W. P. H.

Culture of Silk.

The last New York Commercial Advertiser, contains a letter from R. SINCLAIR, a very intelligent member of the Society of Friends, dated, Baltimore, July 22d, stating that he had received a letter from R. & H. Carson, Lancaster, Pa., informing that the spread of the silk culture in that county and state has been unexpectedly great: and although they are merchants, and consequently are enabled to pay but partial attention to the culture of silk, they have 230 lbs. of very large cocoons from their first crop, and expect to have 1000 from the next, and have met with no disappointment in hatching or feeding, but all has done well.

Mr. Sinclair further says: "I have hatched out 27 oz.* of eggs in my cocoonery, two-thirds of which have wound their cocoons, and the balance are proceeding successfully. I had very little experience the last season, having then but 5000 worms, and although a stranger to the business, I have found no difficulty in raising silk. If we have good eggs, well preserved, so as to bring them out in succession to suit the house-room and the foliage, there never will be any difficulty. I have an excellent cocoonery, well ventilated in both stories and garret, together with a cellar well paved, 20 by 30 feet. I think I can raise 500,000 worms at a time, and three such crops in a season. There are many people raising silk around here, and I have heard of no discouragement among them. I have visiters to see the different operations daily, and I expect to commence reeling silk on the Piedmontese reel next week."

* Sufficient to produce 300 lbs. reeled silk.

Watering and Feeding Horses.

To prevent all inflammatory disorders arising from the too prevalent practice on the part of the inexperienced, in the use and application of the necessary and proper quantity of both food and water, for the comfort and preservation of their health and consequent usefulness, I subjoin the following unerring rules and directions, to secure and insure the health, vigor, and consequent utility of this most valuable and indispensable animal to man.

When a horse is heated from any cause, great care should be taken, while in that state, to allow him to take but a very small quantity of cold water at a time—say not more than two quarts, which may be repeated at intervals during his meals, which should also be limited. New hay and corn should always be rejected, when pure hay and oats can be obtained; the natural and certain tendency of the introduction of either new or green hay, any Indian corn (in too great quantities) into the stomach of a horse, is to produce diseases in that organ, and consequently the derangement of his whole system; the animal is therefore rendered worse than useless; for delay, and frequently further remedies are vainly sought for, because it too often happens that from the ignorance of the operator, he adds to the malady, instead of removing it.

Give your horse (after, and while he is heated,) one quart of oats or dried corn, with a sprinkle of salt, after his first draught of water, of two quarts. These portions of each, water and food, may be repeated at discretion, during the reasonable but necessary time for the rest of the animal, and you may then, with certainty and safety, pursue your journey to any distance and time.

Receipt.—When the foregoing directions are omitted, and the bad effects are apparent, give the animal the following:

Tincture of benzoin, one ounce; spirits of Ammonia, one oz.; aromatic confection, half an oz.; ginger, one oz. To be mixed in one quart of water. When a horse is overheated, this application will relieve him—and it may also be given with success, in case a horse is affected with cholic or gripes, flatulency in the stomach or intestines, mixed with a pint of warm oil—to be repeated every three hours, until relieved. WILLIAM COOKE,

Veterinary Surgeon.

From the New Genesee Farmer.

Breaking Steers.

Messrs. Editors.—A correspondent in your last paper asks to be informed "how to prevent steers from being sulky when breaking them for the yoke."

I answer—treat them with *gentleness* and *kindness*. As in the human, so in the brutish species, we must expect to find a great disparity of temper and disposition: and so vicious and obstinate indeed are some that they cannot, even by the wisest means, be rendered entirely docile. Much, however, may be done by discreet management. And here permit me, *as you value a good character and a good conscience*, to warn you against all manner of cruelty, severity or rashness, in breaking steers or any other animals.

The winter before your steers are a year old, shut the pair you wish to break, into a yard, apart from other cattle; yoke them and tie their tails together as gently as you can, and leave them, to break themselves in their own way, some six or eight hours; then untie their tails, take off their yoke, and let them go. Repeat this process whenever convenient, during the winter or spring, till they shall become gentle and tractable in yoking and unyoking, and shall have learned of themselves how to walk even, turn about, &c. in the yoke. You may then, if you choose, (treating them tenderly,) drive them about until they have become somewhat familiar with the words of command; but take heed you don't put them to draw a load, or permit your boys to jade them about, lest it should impair their strengh or ambition. Thus trained, turn them out and let them run till you wish to work them; at which time, (even though it should be several years,) you will find them as tractable as when you last unyoked them.

But perhaps your steers are already two or three years old, and as untutored as the Buffaloes of the forest. In this case put them into a small strong yard, and, in the gentlest manner possible, put a yoke on one of them—taking out the spare bow—and let him go with it until he shall become familiarized to wearing it. If you have another yoke you may do the same with the other steer at the same time: if not, give them a turn about with the yoke till they become somewhat subdued. Then yoke the pair together as civilly as possible, tie their tails, and treat them as directed in the case of the calves. When you commence driving them, if uncommonly sturdy or wild, it would be prudent to halter the near one, lest they might get the advantage of you in a race: but don't rely on your halter in one hand and a short whip in the other for managing your team; you can never drive your off ox in this way; take the old fashioned cart whip in both hands, and with this, guide, direct, and enforce your commands. On putting them to work, if with a yoke of oxen, put them, (not as commonly practised, behind, to be dragged about by the horns,) but, before; where, properly

managed, they will very soon become quite handy and obedient. Their temper, ambition, and constitution, will be unimpaired; and, (though last not least) your conscience will be clear from the sin, too common to farmers as well as others, of cruelty to the brute. C.

Management of Orchards.

It is generally imagined that, when the trees are planted, the troublesome part of forming an orchard is over; but the fact is far otherwise, for a greater difficulty remains, which is, to determine what proper use to apply the ground to. If it is cultivated by the plough, little good can be expected; for, the injuries which young trees constantly receive from implements in husbandry, bruising and destroying them before they can have got full possession of the soil, generally hurts most essentially; and if, by a superlative care, they should surmount the evils so brought on, the crops of corn being regularly carried off the land impoverishes the ground so much, that the trees are soon stinted, and run to moss.

There is not any culture we are acquainted with, equal to hops, for raising an orchard; and, when the proper time comes for grubbing up the hops, the trees may be secured, and the land turned to grazing. However, let the agriculture be what it may, the land should never be ploughed, or dug deep, directly over the roots of a young-planted fruit tree; for, as the roots collect their best benign sap from their extreme points, if those points are broken off from the upper side of the roots, that tree is compelled to subsist on nurture drawn from the under strata, and consequently, the sap will be of an inferior quality.

It may be regularly observed, that, where trees stand in such a situation that the hogs and poultry are constantly running over the ground, those trees very seldom fail of a crop, which is the best proof that manure is necessary, and any manure will suit an orchard; but there are several sorts of manure which are overlooked, such as the sweepings of cow-houses and slaughter-houses, emptying of drains, and every thing filthy; and these are more disposed to facilitate the growth and health of fruit-treets, than the manure from the stable.

An essential circumstance to be attended to is, that the fruits be ordered of those sorts which thrive in the neighborhood where the plantation is intended to be made, and a strict regard shewn to that purpose, as the beauty and value of the whole orchard will greatly depend upon the trees being well suited. There is a striking instance of this at Sittingbourne and its neighborhood: the lemon-pippen is invariably a fine thriving tree, and the summer pearmain as constantly ragged and out of health; and this observation may be applied throughout the whole range of fruit-bearing trees, according to the soil and situation.

Care should be taken, not to suffer trees to bear much fruit while young: it should be gathered as soon as seen, except about half a dozen, to show the size and quality. The young trees being kept clear will give them, if I may use the expression, the habit of producing larger and finer fruit, but that is not the material reason; by being kept clear, the leading and collateral branches run stronger each year, and, be assured, if the tree can be brought to a proper size, there will be no doubt of its bearing afterwards. Observe those gentlemen who pride themselves for being masters of fine stock, either horses, cattle, or sheep, and you will find the governing principle with each of them, is to run the young stock to as *long bone* as possible in the first year; knowing, from experience, that, having once secured bone, flesh, figure, and symmetry, will follow. Such trees as suit the soil may, by easy means, be induced to grow to a size beyond what we imagine: let the land be grazed or manured, and gather the fruit before it can be applied to any use. How

long this custom should be continued, each orchardist must judge for himself; but no one will have the least chance for the prize, who does not take off the fruit, for some time at least.

There is no impropriety in deeming the heads of fruit-trees so many hemispheres: only suppose it possible, by any art, to induce each of the branches of one tree to grow two inches longer than those of another tree, in the same year, that free-growing tree will, in eighteen years, double the head of the other: so much for size. Health is the certain consequence.

No young planted, or newly-engrafted tree, should be suffered to run *mop-headed;* for until each branch has acquired a determined leader, that tree will make no progress; and if a tree, like an animal, takes a stint, it is difficult to throw such energy into the system afterwards as will make it free-growing.

It has been objected, that, if no leading branches are to be shortened, the nursery-man could not form the stems to support the head.

Undoubtedly, while the plants are in the nursery, the slightest practitioner knows that the head must be cut down, to give strength and symmetry to the stem: it is also necessary that most of the grafts be shortened, or the wind will blow them out; and, during the time the plants are in an infant state, shortening helps to swell out the buds. It was never meant to exclude shortening, until the plant was become a tree; and it is perfectly within the nursery-man's art, to produce all his standard fruit-bearing trees with stems large and smooth, buds full and round, and leaves broad and open, without the tree being much liable to canker, or gum; and this is given as the character of a perfect and valuable tree.

MOSS.

One of the greatest obstructions to good orcharding is moss, which is merely the result of poverty and neglect, reflecting a discredit on the owner. Where trees are much overrun with moss, a strong man, with a good birch-broom, in a wet day, would do great execution. But, to enter more into the business, what is moss? a plant, and, like other plants, may be eradicated on the first appearance: for that purpose, on young trees, the best method is, to rub all the branches, spring and autumn, with a hard scrubbing-brush and soap-suds; and the action of rubbing will so far invigorate the tree, as to overpay both trouble and expense. There is no damage can befall the tree from rubbing; and let it be performed as a groom does a horse's legs. Others use oil, which gives a fine smoothness to the bark.

Certainly, the best soil to plant on, is a fine deep loam; and no one, for profit, would think of planting on a strong clay, chalk, or a cold sharp gravel: but, where a gentleman, for the embellishment of his residence, would wish for an orchard on either of these soils, never dig into the under strata, for, that would be placing the trees in so many well-holes, where certain destruction must ensue: therefore, rather plant the trees above ground, raising over it a little mound of good fresh mould, about as large as an extensive anthill, under a curve of eight inches by sixty, and sow the top with red clover.

CANKER.

In pruning, the medication ought never to be omitted; for, from experience, the mercury is found to be so strongly operative in removing the baneful effects of canker, in the more delicate fruit-trees, that it may be presumed to enter into the economy of the plant, giving a smoothness to the bark, and freeness of growth; proofs of which will be produced to the public, in a few years, by persons who have attentively considered the subject.

I shall here give an abstract of the system of close-pruning and medication, as before laid down, that it may be seen at one point of view.

Let every stump, the decayed or blighted branches, with all those which

cross the tree, or where the leaves curl, be taken off, close, smooth, and even; pare down the gum close to the bark, and rather a little within, but not to destroy the rough coat; open the fissures, out of which the gum oozes, to the bottom; cut away the blotches, and pare down the canker; then anoint all the wounds with the medication, smearing a little over the canker which was not large enough to be cut; score the tree, and rub off the moss; but do not shorten a single branch; follow the surgeon's rule, go to the quick, and no more; act with observation, and each practitioner will improve the science.

A tree under such caré must, with its remaining free shoots, run large, which, requiring a great flow of sap, will keep the roots in constant employ, and from that very source necessarily establish permanent health.

Canker arises, in a great measure, from small insects, something like the cochineal fly, and, where the only object is to remove it, I find hog's lard preferable to tar; but, where the wet is to be guarded against, tar is superlatively better.

Gapes in Chickens.

A correspondent of the Albany Cultivator gives the following remedy for the gapes in chickens:

"Remove the worms out of the windpipe and they will get well. This can be done with safety and facility, after a little practice, in the following manner. Let some one take the chicken, holding its legs in one hand and placing the other over its back, so as to hold it firm; then let the operator take a small hen's feather or a large pigeon's feather, and strip off the feather from the stem excepting about an inch or inch and a half from the tip end, according to the size of the chicken; wet it a little, and strip that part back so that what remains on the stem will stand back like the barbs on an arrow, excepting the extreme point, which roll a little so as to make a point; then let the operator take the head of the chicken in his left hand, placing his thumb and forefinger on each side of the bill, in such a manner as to hold the mouth open, the neck gently but firmly drawn out in a straight line; then observe the opening back in the tongue, place the feather as near to it as possible, and when the chicken breathes, the windpipe will be open, enter the point quick, and fear not after the point is entered; push down gently from two to three inches, (don't be in too much of a hurry,) then draw out, and turn the feather as it is drawn, and the worms will adhere to the feather, and others will be loosened, and the chicken will sneeze them up frequently, so that they will fly out of their mouths. It is not advisable to enter the feather more than twice at one time; let the chicken go, and if it gapes the day after, you have not got them all; try again. This is a sure cure if attended to; generally you need not perform the operation more than once, but sometimes oftener. The greater part of my chickens, over one hundred in number, have had the disease, and I have lost but one. I have taken out as many as eleven worms at one haul."

Horses.

The New York Spirit of the Times holds the following language, with reference to good and bad horses, and the way to use a decent animal decently.

"The use of thorough and half-bred horses, for domestic purposes, is becoming so common in England, that in a few years no others will be used for the road. The half-bred horse is not only much handsomer, but his speed and powers of endurance are infinitely greater. His head and neck are light and graceful, his limbs fine, his coat glossy and soft as satin, while his action is spirited and his courage and stamina sufficient to carry him through a long journey, without his falling off in condition. The ordinary cocktail is in most instances a mere brute, that in travelling sinks daily in strength, losing his appetite, and of course his flesh and action,

so that at the termination of a few days' journey he is nearly knocked up; he can travel but about forty miles per day, and requires the whole day to perform this distance. An eminent Southern turfman, well known the country over, *recovers* his horses on a journey; they are all from the North, and have a dash of *blood* in their veins; after driving them hard about his plantation in the spring, until they begin to look thin and rough, he starts on his annual journey, and by the time he reaches the Virginia Springs, his horses are literally as fine as silk, with fine coats, great spirit, and in good condition for fast work. In travelling, he starts early and drives at the rate of eight or nine miles the hour, until ten o'clock, when his horses are taken out, rubbed dry, watered and fed. In the cool of the day they are again harnessed, as fresh as if they had not travelled a mile. In this way he accomplishes a long journey, travelling between fifty and sixty miles a day, without fatigue to himself or injury to his horses. The slow-going, no giving sort of style in which horses are jogged along at a snail's pace all day, under a hot sun, knocks them up in a short time; they would neither tire nor lose flesh in double the time if driven sharply a few hours in the morning and evening, allowing them to rest in the middle of the day. It is *the all day work* that knocks up horses, not the pace, and we make no doubt that in the course of twenty years there will be very few who will refuse to acknowledge the truth of Fanny Kemble's remark, that, "*nothing but thorough bred does it quite well.*"

Cultivation of the Cauliflower.

To the Editor of the Pennsylvania Inquirer.

Sir—It gives me great pleasure to find that your very able address and appeal to the public, with the hope of encouraging a more *extensive cultivation* of that universal and matchless vegetable, the "Cauliflower," has met with the desired result.

I am receiving numerous applications from gentlemen, from gardeners, and from others, for information and for a detailed statement of my practice: I most sincerely hope that the following plain and simple extract from my Garden Diary, will prove beyond all doubt, that this fine vegetable can be as easily raised as early cabbage.

September the 16th, 1839, sowed the seed broadcast in the open garden; October the 17th, and 28th, removed 200 plants from thence into cold frames, at a distance of 4 inches apart each way; April 2d, 1840, commenced transplanting into the open garden, without *any protection* whatever, at a distance of 2½ feet each way, continuing to do so, at intervals, until April the 17th. These plants withstood seven frosts; one, April the 9th, very severe; which proves, and which I am quite satisfied of, that the cauliflower is much more tenacious of life than is generally supposed.

I commenced cutting the flowers or heads for the use of the family, May 5th, and continued cutting twice and thrice a week until July 3d, when I cut the last and finest flower, the circumference of the head of which, with the leaves cut off, was 3 feet four inches, weight 6 lbs. 13 oz.

Last year I cultivated them upon the same principle, and with equal success, although in a different part of this State, which proves that success does *not* depend upon locality. See United States Gazette, June 19th, 1839. I transplanted into the open garden, February 22d, Early York Plants, and obtained the Society's Premium, May 30th, some of the heads weighing from 4½ to 5 lbs. each.

If my humble achievements can only serve as a rough and unpolished rubble stone in that glorious superstructure of American Horticulture, that will one day be reared the Pride of the World, I shall think myself well repaid for my pains.

I am sir, respectfully, yours,

GREGORY LEE.

Meadow Grove, Montgomery co.,
July 3, 1840.